

We claim:

1. A process for preparing a hydroxylation catalyst by
 - i) embedding a cytochrome P450 monooxygenase in a sol-gel matrix,
 - 5 ii) embedding an enzymatic NADPH-regenerating system in a sol-gel matrix, and combining the two components i) and ii) unless they were already mixed together before the embedding.
2. A process as claimed in claim 1, wherein enzymes which had originally been
10 isolated from the genus *Bacillus* are used as monooxygenases.
3. A process as claimed in claim 2, wherein the monooxygenases have been isolated from *Bacillus megaterium*.
- 15 4. A preparation comprising a cytochrome P450 monooxygenase and an enzymatic NADPH-regenerating system in a sol-gel matrix.
5. A process for the enzymatic hydroxylation of a substrate by reacting the substrate with a hydroxylation catalyst which can be prepared as claimed in any of
20 claims 1 to 3.
6. A process as claimed in claim 5, wherein β -ionone is employed as substrate.